

AATATTTTCCTTGACCTAATGCCATCTTGTGTCCCCTTGACAGAGCCCTATTCCCTAACATGGCTGATGACTA
 TGGCTCTGAATCCACATCTTCCATGGAAGACTACGTTAACTTCAACTTCACTGACTTCTACTGTGAGAAAA
 ACAATGTGAGGCAGTTTGGCAGCCATTTCCCTCCACCCCTTGACTGGCTCGTGTTCATCGTGGGTGCTTGG
 GGCAACAGTCTTGTATCCTTGTCTACTGGTACTGCACAAGAGTGAAGACCATGACCGACATGTTCCCTTTT
 GAATTTGGCAATTGCTGACCTCCTCTTTCTTGTCACTCTTCCCTTCTGGGCCATTGCTGCTGCTGACCACT
 GGAAGTTCCAGACCTTCATGTGCAAGGTGGTCAACAGCATGTACAAGATGAACCTTCTACAGCTGTGTGTTG
 CTGATCATGTGCATCAGCGTGGACAGGTACATTGCCATTGCCAGGCCATGAGAGCACATACTTGGAGGGA
 GAAAAGGCTTTTGTACAGCAAAATGGTTTGTCTTACCATCTGGGTATTGGCAGCTGCTCTCTGCATCCAG
 AAATCTTATACAGCCAAATCAAGGAGGAATCCGGCATTGCTATCTGCACCATGGTTTACCCTAGCGATGAG
 AGCACCAAACTGAAGTCAGCTGTCTTGACCCTGAAGGTCACTTCTGGGGTCTTCCCTTCCCTTCGTGGTCAT
 GGCTTGCTGCTATACCATCATCATTCACACCCTGATACAAGCCAAGATCTTCCAAGCACAAAGCCCTAA
 AAGTGACCATCACTGTCTGACCGTCTTTGTCTTGTCTCAGTTTCCCTACAACCTGCATTTTGTGGTGCAG
 ACCATTGACGCCTATGCCATGTTTCTTCCAACCTGTGCCGTTTCCACCAACATTGACATCTGCTTCCAGGT
 CACCCAGACCATCGCCTTCTTCCACAGTTGCCTGAACCCTGTTCTCTATGTTTTTGTGGGTGAGAGATTCC
 GCCGGGATCTCGTGAAAACCTGAAGAACTTGGGTTGCATCAGCCAGGCCAGTGGGTTTCAATTTACAAGG
 AGAGAGGGAAGCTTGAAGCTGTCTCTATGTTGCTGGAGACAACCTCAGGAGCACTCTCCCTCTGAGGGGT
 CTTCTCTGAGGTGCATGGTTCTTTTGAAGAAATGAGAAATACATGAAACAGTTTCCCCACTGATGGGACC
 AGAGAGAGTGAAGAGAAAAAGAAACTCAGAAAGGGATGAATCTGAACCTATATGATTACTTGTAGTCAGAA
 TTTGCCAAAGCAAATATTTCAAATCAACTGACTAGTGCAGGAGGCTGTTGATTGGCTCTTGACTGTGATG
 CCCGCAATTCTCAAAGGAGGACTAAGGACCGGCACTGTGGAGCACCTGGCTTTGCCACTCGCCGAGCAT
 CAATGCCGCTGCCTCTGGAGGAGCCCTTGATTTTCTCCATGCATGTGAACCTCTGTGGCTTCAGTTCTC
 ATGCTGCCTCTTCCAAAAGGGGACACAGAAGCACTGGCTGCTGCTACAGACCGCAAAGCAGAAAGTTTCG
 TGAAAATGTCCATCTTTGGGAAATTTTCTACCCTGCTCTTGAGCCTGATAACCCATGCCAGGTCTTATAGA
 TTCTTGATCTAGAACCTTTCCAGGCAATCTCAGACCTAATTTCTTCTGTTCTCCTTGTCTGTTCTGGGC
 CAGTGAAGGTCCTTGTCTGATTTTGAACGATCTGCAGGTCTTGCCAGTGAACCCCTGGACAACTGACCA
 CACCCACAAGGCATCCAAAGTCTGTTGGCTTCCAATCCATTTCTGTGCTCCTGCTGGAGGTTTTAACCTAGA
 CAAGGATTCCGCTTATTCTTGGTATGGGTGACAGTGTCTCTCCATGGCCTGAGCAGGGAGATTATAACAGC
 TGGGTTTCGCAAGGAGCCAGCCTTGGCCCTGTTGTAGGCTTGTCTGTTGAGTGGCACTTGCTTTGGGTCCAC
 CGTCTGTCTGCTCCCTAGAAAATGGGCTGGTTCTTTTGGCCCTCTTCTTTCTGAGGCCCACTTTATTCTGA
 GGAATACAGTGAGCAGATATGGGCAGCAGCCAGGTAGGGCAAAGGGGTGAAGCGCAGGCCTTGCTGGAAGG
 CTATTTACTTCCATGCTTCTCCTTTTCTTACTCTATAGTGGCAACATTTTAAAAGCTTTTAACTTAGAGAT
 TAGGCTGAAAAAATAAGTAATGGAATTCACCTTTGCATCTTTTGTGTCTTTCTTATCATGATTTGGCAAA
 ATGCATCACCTTTGAAAATATTTACATATTGGAAGAGTGTCTTTTAAATGTGTATATGAAGCATTAATTAC
 TTGTCACTTTCTTTACCCTGTCTCAATATTTTAAAGTGTGTGCAATTAAAGATCAAATAGATACATTAAGAG
 TGTGAAGGCTGGTCTGAAGGTAGTGAGCTATCTCAATCGGATTGTTTCACTCAGTTACAGATTGAACCTCC
 TTGTTCTACTTCCCTGCTTCTCTCTACTGCAATTGACTAGTCTTTAAAAAAGTGTGAAGAGTAAGCAAT
 AGGGATAAGGAAATAAGATCT (SEQ ID NO:1)

MADDYGSESTSSMEDYVNFNFDFYCEKNVNRQFASHFLPPLYWVFIVGALGNSLVILVYWYCTRVKTMTD
 MFLNLAIADLLFLVTLPFWAIAAADQWKQTFMCKVNSMYKMNFYSCVLLIMCISVDRIYIAIAQAMRAH
 TWREKRLLYSKMCFTIWLAAALCIPEILYSQIKEESGIAICTMVYPSDESTKLKSAVLTLKVILGFPLP
 FVVMACCYTIIHTLIQAKKSSKHKALKVTITVLTVFVLSQFPYNCILLVQITIDAYAMFISNCAVSTNIDI
 CFQVTQTIAFFHSLNPVLYVVFGERFRRLVVKTLKNLGCISQAQWVSFTRREGSLKLSSMLLETTSGALS
 L (SEQ ID NO:2)

FIGURE 1

Underlined = deleted in targeting construct

Bold = sequence flanking Neo insert in targeting construct

AAATATTTTCTTGACCTAATGCCATCTTGTGTCCCCTTGAGAGCCCTATTCCTAACATG
GCTGATGACTATGGCTCTGAATCCACATCTTCCATGGAAGACTACGTTAACTTCAACTTC
ACTGACTTCTACTGTGAGAAAAACAATGTCAGGCAGTTTGGGAGCCATTTCTCCCACCC
TTGTACTGGCTCGTGTTCATCGTGGGTGCCTTGGGCAACAGTCTTGTAT CCTGTCTAC
TGGTACTGCACAAGAGTGAAGACCATGACCGACATGTTCCCTTTGAATTTGGCAATTGCT
GACCTCCTCTTTCTTGTCACTCTTCCCTTCTGGGCCATTGCTGCTGCTGACCACTGGAAG
TTCCAGACCTTCATGTGCAAGGTGGTCAACAGCA **TGTACAAGATGAAC****TTCTACAGCTGT**
GTGTTGCTGATCATGTGCATCAGCGTGGACAGGTACATTGCCATTGCCAGGCCATGAGA
GCACATACTTGGAGGGAGAAAAGGCTTTTGTACAGCAAAATGGTTTGCCTTACCATCTGG
GTATTGGCAGCTGCTCTCTGCATCCCAGAAATCTTATACAGCCAAATCAAGGAGGAATCC
GGCATTGCTATCTGCACCATGGTTTACCCTAGCGATGAGAGCACCAAAC**TGAAGTCAGCT**
GTCTTGACCTGAAGGTCATTCTGGGGTCTTCCCTTCCCTTCGTGGTCATGGCTTGCTGC
TATACCATCATCATTACACCCCTGATACAAGCCAAGAAGTCTTCCAAGCACAAAGCCCTA
AAAGTGACCATCACTGTCTGACCGTCTTTGTCTTGTCTCAGTTTCCCTACAAC**TGCATT**
T TGTGGTGCAGACCATTGACGCCTATGCCATGTTTCATCTCCAACGTGCGCGTTTCCACC
AACATTGACATCTGCTTCCAGGTCACCCAGACCATCGCCTTCTTCCACAGTTGCCTGAAC
CCTGTTCTCTATGTTTTTGTGGGTGAGAGATTCCGCCGGGATCTCGTGAAAACCTGAAG
AACTTGGGTGTCATCAGCCAGGCCAGTGGGTTCATTTACAAGGAGAGAGGGAAGCTTG
AAGCTGTCGTCTATGTTGCTGGAGACAACCTCAGGAGCACTCTCCCTCTGAGGGGTCTTC
TCTGAGGTGCATGGTTCTTTTGAAGAAATGAGAAATACATGAAACAGTTTCCCCACTGA
TGGGACCAGAGAGAGTGAAGAGAAAAGAACTCAGAAAGGGATGAATCTGAATATAT
GATTACTTGTAGTCAGAATTTGCCAAAGCAAATATTTCAAATCAACTGACTAGTGCAGG
AGGCTGTTGATTGGCTCTTGACTGTGATGCCCGCAATTCTCAAAGGAGGACTAAGGACCG
GCACTGTGGAGCACCCCTGGCTTTGCCACTCGCCGAGCATCAATGCCGCTGCCTCTGGAG
GAGCCCTTGGATTTTCTCCATGCACTGTGAACCTTCTGTGGCTTCAGTTCTCATGCTGCCT
CTTCCAAAAGGGACACAGAAGCACTGGCTGCTGCTACAGACCGCAAAAGCAGAAAGTTT
CGTGAAAATGTCCATCTTTGGGAAATTTCTACCCTGCTCTTGAGCCTGATAACCCATGC
CAGGTCTTATAGATTCTGATCTAGAACCTTTCCAGGCAATCTCAGACCTAATTTCCCTTC
TGTTCTCCTTGTCTGTTCTGGGCCAGTGAAGGTCCTTGTCTGATTTTGAAACGATCTG
CAGTCTTGCCAGTGAACCCCTGGACAACCTGACCACACCCACAAGGCATCCAAAGTCTGT
TGGCTTCCAATCCATTTCTGTGTCTGCTGGAGGTTTTAACCTAGACAAGGATTCCGCTT
ATTCCTTGGTATGGTGACAGTGTCTCTCCATGGCCTGAGCAGGGAGATTATAACAGCTGG
GTTTCGAGGAGCCAGCCTTGGCCCTGTTGTAGGCTTGTCTGTTGAGTGGCACTTGCTTT
GGGTCCACCGTCTGTCTGCTCCCTAGAAAATGGGCTGGTTCTTTTGGCCCTCTTCTTTCT
GAGGCCACTTTATTCTGAGGAATACAGTGAGCAGATATGGGCAGCAGCCAGGTAGGGCA
AAGGGGTGAAGCGCAGGCCTTGGTGGAAAGGCTATTTACTTCCATGCTTCTCCTTTTCTTA
CTCTATAGTGGCAACATTTTAAAGCTTTTAACTTAGAGATTAGGCTGAAAAAATAAGT
AATGGAATTCACCTTTGCATCTTTTGTGTCTTCTTATCATGATTTGGCAAAATGCATCA
CCTTTGAAAAATATTTACATATTGGAAGTGTCTTTTAAATGTGTATATGAAGCATTAAT
TACTTGTCACTTTCTTTACCCTGTCTCAATATTTTAAAGTGTGTGCAATTAAGATCAAAT
AGATACATTAAGAGTGTGAAGGCTGGTCTGAAGGTAGTGAGCTATCTCAATCGGATTGTT
CACACTCAGTTACAGATTGAACCTCTTGTCTACTTCCCTGCTTCTCTACTGCAATTG
ACTAGTCTTTAAAAAAGTGTGAAGAGTAAGCAATAGGGATAAGGAAATAAGATCT

FIGURE 2A

Gene Sequence
Structure *

231 bp

Sequence Deleted

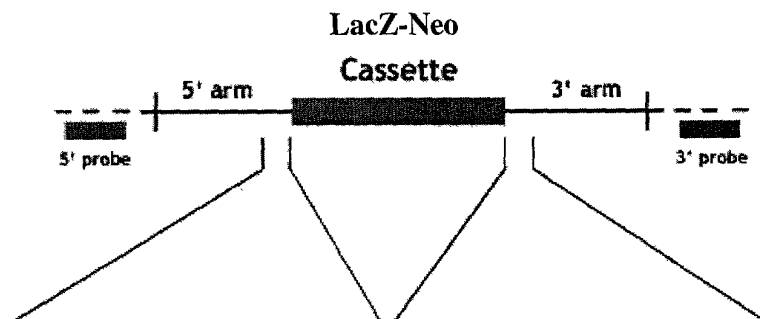
394 bp

Size of CDS: 2577 bp

Targeting Vector* (genomic sequence)

Construct Number: 3340

Arm Length:
5': 2.7 kb
3': 4 kb



5' >TATTCCTTACAGAGCCTTATT
CCTGGCATGTTTGATGACTTCAGC
TATGACTCCACTGCTTCCACAGAT
GACTACATGAATTTGAATTCAGT
AGCTTCTTCTGTAAGAAAAATAAT
GTCAGGCAGTTTGCAAGCCATTTT
CTCCACCTCTGTACTGGCTTGTG
TTCATTGTGGGCACCTTGGGCAAC
AGCCTGGTCAT<3'
(SEQ. ID. NO. 3)

5' >TGTACAAGATGAACTTCTACA
GCTGTGTGCTTCTCATCATGTGCA
TCAGTGTGGACAGATACATTGCCA
TTGTACAGGCCATGAAGGCTCAGG
TCTGGAGGCAGAAAAGGCCGCTAT
ACAGCAAGATGGTCTGCATTACCA
TCTGGGTGATGGCAGCTGTGCTCT
GCACCCAGAAATCCTGTACAGTC
AAGTCAGTGGG<3'
(SEQ. ID. NO. 4)

Targeting Vector

Endogenous Locus

* Not drawn to scale

FIGURE 2B